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Incorporation of active pharmaceutical ingredients into the polyester carriers
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ABSTRAKT

This diploma thesis deals with the incorporation of drugs into the polyesters using melting method and the method of polyester dissolving in a suitable solvent. A linear polyester of D,L-lactic and glycolic acid (PLGA) and the polyester branched with tripentaerythritol (3T) with incorporated fluconazole or terbinafine base were tested. The theoretical part is focused on the characterization, evaluation and utilization of DSC methods, glass transition temperature (T_g) and residual solvents. In the experimental part the T_g of the samples processed by melting or dissolving in butanone, dichloromethane, ethyl acetate or methyl ester of formic acid was measured. The release of fluconazole or acyclovir from polyesters of PLGA and 3T processed by melting without plasticizer was studied. The amount of released drug was determined by spectrophotometry and HPLC. The results show that the values of T_g polyesters are higher than the ambient temperature, therefore the incorporation of the drug is difficult. Fluconazole and terbinafine base influence T_g of polyesters in small extent. Methyl ester of formic acid is the most suitable solvent for the incorporation of drugs by dissolution method. The liberation of drugs from linear polyester of PLGA is faster than from branched polyester of 3T.

Keywords: branched polyesters, fluconazole, acyclovir, terbinafine, glass transition temperature.